Transmission Project Cost Control Guidelines

1. Terms and Definitions

The following terms and definitions are used to define the cost categories used to measure cost performance. These definition are provided in the Recommended Practices Terminology from the Association for Advancement of Cost Engineering (AACE).

- **Cost Estimate:** the prediction of quantities, cost and/or price of resources required by the scope of an investment option, activity, or project. As a prediction, an estimate must address project risks and uncertainties.
    - Estimates are used primarily as inputs for budgeting, cost or value analysis, decision making in business, asset and project planning, or for project cost and schedule control process.
    - Cost Estimates are determined utilizing experience, calculating and forecasting the future costs of resources, methods, and management within a scheduled time frame.

- **Project Scope:** defines the work that must be performed to deliver a product, service or result with the specified features and functions.

- **Scope Change:** is the deviation from project scope which may result in cost variance and is captured through the change order process.

- **Contingency:** an amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, and/or effect are uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. Contingency usually **excludes**:
    - Major scope changes such as changes in end product specification, capacities, building sizes, and location of the asset or project
    - Extraordinary events such as major strikes and natural disasters
    - Management reserves
    - Escalation and currency effects

Some of the items, conditions, or events for which the state, occurrence, and/or effect is uncertain include, but are not limited to, planning and estimating errors and omissions, minor price fluctuations (other than general escalation), design developments and changes within the scope, and variations in market and environmental conditions. Contingency is generally included in most estimates, and is expected to be expended.

2. Examples

Based on the previous definitions, here are a few examples for contingency and scope changes:

- **Contingency:**
  - Field Condition design adjustment (e.g. Field Conflict)
  - Minor addition to original Aesthetic Mitigation Plan (e.g. Additional Tree Planting)
  - Minor incremental change to Cost Estimate (10-15%) (e.g. Unit Price Increase) excluding general escalation.
  - Estimating Errors / Omissions (e.g. Quantity take-off error)
  - Design Development and Changes within the Original Scope (e.g. pole placement less than 50ft)
  - Market & Vendor Variations (e.g. Price delta between vendors)
  - Reasonable Environmental condition or Customer Request Adjustments (e.g. avoiding stream)
  - Weather Impact on construction (Limited to minor delays of few days)

- **Scope Changes:**
  - Major Project Scope Changes (e.g. Relocation of substation site)
  - Specification Changes (e.g. Design Criteria Change)
  - Escalation and Currency Effects (e.g. Handy Whitman Index)
  - Regulatory Directed Project Definition Changes (e.g. request to reduce pole heights by increasing numbers of poles, undergrounding Transmission or Distribution Lines)
  - Project Re-Routes or Relocation from the Original Scope
  - Unusual and costly compliance measures (Environmental / Archeological / Land Impact)
  - Significant Project Delays (Cost Incurred through the Escalation Cost and the Carried project burden, including capital interest)
  - Extreme weather adverse condition. Major project slow down or interruption (in weeks)

- **Project cost controls and forecast**

The project cost performance is measured against the **Cost Baseline** which is comprised of the following elements:

[Original Cost Estimate incl. the contingency] + [Project Scope Changes] + [HW Adjustment]

The project financial progress is tracked on a monthly basis where **Actuals** are verified and validated. Based on project cost changes through the Change Controls process, the project forecast is revised and reissued. The project forecast **consists of**:

[Actuals] + [Remaining Cost] + [Contingency] + [Scope Changes] + [HW Adjustment]

The Handy Whitman adjustment represents the adjusted escalation costs based on Utility Industry based cost index for Labor, Material and Equipment.

The following graph represents the project cost build up: